UNITED STATES DEPARTMENT OF AGRICULTURE • FEDERAL EXTENSION

EXTENSION SERVICE Review

FEBRUARY 1959

Increasing Efficiency In Agricultural Production

EXTENSION SERVICE Review

Official monthly publication of Cooperative Extension Service: U. S. Department of Agriculture and State Land-Grant Colleges and Universities cooperating.

The Extension Service Review is for Extension educators—in County, State and Federal Extension agencies—who work directly or indirectly to help people learn how to use the newest findings in agriculture and home economics research to bring about a more abundant life for themselves and their community.

The Review offers the Extension worker, in his role of educational leader, professional guideposts, new routes, and tools for speedier, more successful endeavor. Through this exchange of methods, tried and found successful by Extension agents, the Review serves as a source of ideas and useful information on how to reach people and thus help them utilize more fully their own resources, to farm more efficiently, and to make the home and community a better place to live.

Vol. 30 **February 1959** **No. 2**

Prepared in
Division of Information Programs
Federal Extension Service, USDA
Washington 25, D.C.

Acting Director: *Ralph M. Fulghum*

Editor: *Edward H. Roche*

In This Issue

EAR TO THE GROUND

"Extension needs today—perhaps more than ever before—to define and to agree on a hard core of its educational responsibilities," say the Scope Report. Nine major elements comprising that core are outlined in the Report.

This is the first of a series of special issues on these nine areas of Extension responsibility. Each will explain the need for emphasis, give examples of how this need is being met, and explore fresh approaches to meeting it. And each will show how all nine areas are closely related.

That's something all of us should keep in mind—these are not nine separate activities. We can't say, we'll work on area No. 1 this month, No. 2 next month, and so on. Emphasis will vary depending on local needs and conditions. But together these nine areas make up a total program that will insure that Extension makes a maximum contribution to the people it serves.

Paul Johnson, editor of Prairie Farmer, ably expressed the need for this broader look at our responsibilities during the recent FES Annual Conference. "To whittle the number of farmers needed to 5 percent of our total population," he said, "is an amazing accomplishment. But the achievement of the 20-to-1 ratio is not an adequate goal in itself. We serve people, not technological processes."

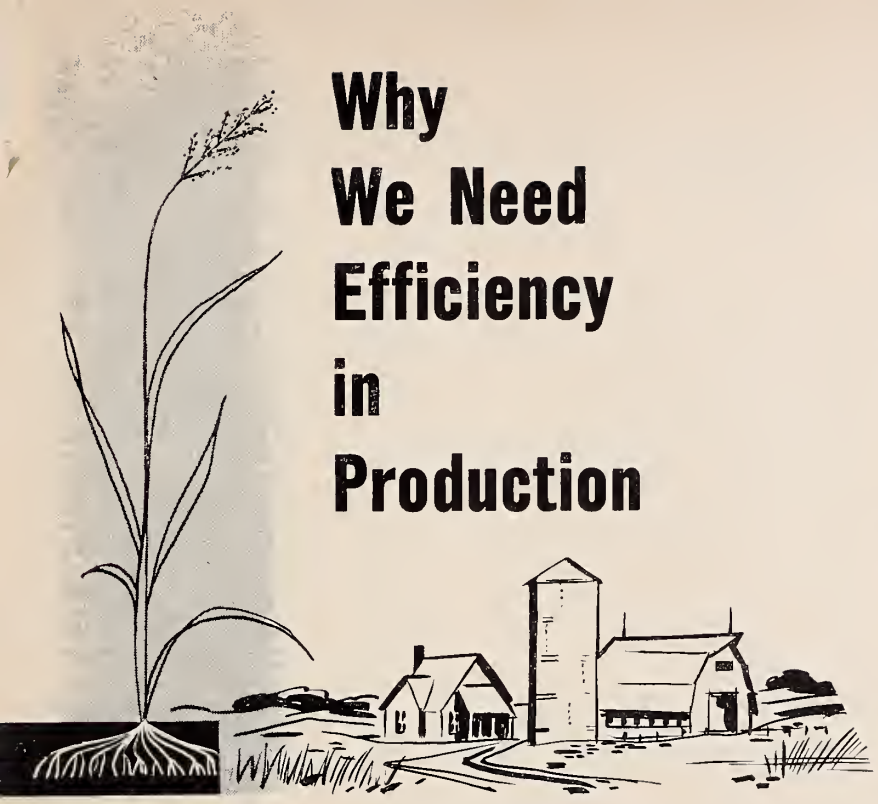
And that's an objective cited in the Scope Report," . . . the development of people themselves to the end that they, through their own initiative, may effectively identify and solve the various problems directly affecting their welfare."

In planning this issue of the Review, we didn't want to emphasize efficiency as such. Instead, we wanted to show the breadth of Extension's responsibilities in enlisting organizations, knowledge, and methods to serve people. For example, some articles tell how to get people to recognize the real problem before planning how to increase efficiency. Others stress the importance of weighing alternatives before deciding on methods, the use of research findings to increase efficiency, enlisting support of other agencies and industry to help solve the problem, and so forth.

Management on the Farm and in the Home will be featured in next month's issue. It will discuss management needs of various groups served by Extension, and how extension workers are getting the job done.—EHR

The Extension Service Review is published monthly by direction of the Secretary of Agriculture as administrative information required for the proper transaction of the public business. Use of funds for printing this publication approved by the Director of the Bureau of the Budget (June 26, 1958).

The Review is issued free by law to workers engaged in extension activities. Others may obtain copies from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., at 15 cents per copy or by subscription at $1.50 a year, domestic, and $2.25, foreign.



Why We Need Efficiency in Production

by H. R. ALBRECHT, *Director of Extension, Pennsylvania*

EFFICIENCY in agricultural production is featured as the first of nine areas of program emphasis in the statement of scope and responsibility of the Cooperative Extension Service. This is not surprising because since its beginning the Extension Service has encouraged farmers to improve their production practices to meet the demands of a growing nation.

The American people have benefited substantially from the agricultural research programs of the Land-Grant Colleges, the U. S. Department of Agriculture and industry. This research, brought into application through the efforts of Extension, has brought high quality food and fiber at low cost to all people.

The amazing productive capacity of the American farmer and the land he tills have served the nation well—in war and in peace, during high and low tides of the nation's economy, in the face of a rising population and a decrease in the number of acres farmed. It has enabled the release of many farm residents into the working force of the nation's industry, helping to establish for America the highest level of living known in history.

The blessings which abundance brought the nation have created certain problems: surpluses, low prices for some commodities, restrictions in freedom of production. These have been compounded by some factors which are relatively new to the American scene:

- A shifting market structure influenced by changing consumer preferences and a need for dependable supplies of uniform quality products.
- Increasing urbanization, bringing with it such factors as conversion of productive farm land to nonfarm uses, increased taxation, restrictive ordinances, highway construction, etc.
- Continual changes in technology as a result of accelerated research.
- Competition from other segments of American industry for land, competent labor, and management.
- High capitalization required in agricultural production and rising costs of supplies, labor, and taxes.

These factors call for continued emphasis on efficiency in agricultural production if the farmer is to gain and maintain a favorable position in the American economy. High capitalization and production costs require labor-saving machinery and intelligent use of land and water resources, new varieties of crops, feeding principles, business practices, etc. These adjustments must be made in the face of increasing population and land pressures.

Meeting All Needs

It is evident that Extension must make certain program and organizational adjustments if it is to service adequately the nation's farmers and its consumers of farm products. Programwise, Extension must improve and expand the use of the unit approach for greater efficiency in agricultural production. New technology must be introduced into farming operations with efficiency, but not necessarily increased production, as a foremost objective.

Extension-developed plans should assist farmers to use all available services of government and private agencies. An intensification of farm and home development and the program projection processes seems inevitable if farmers, processors, distributors, and consumers are to gain a comprehensive understanding of all components of agricultural production and marketing.

Organizational adjustments which Extension must make in order to most effectively promote greater efficiency in agricultural production include:

Stress technical areas which contribute directly to efficiency of agricultural production with a minimum expenditure of resources.

Adopt the team approach in problem identification and solution and in program development.

Improve liaison with research personnel, with special emphasis on identification of research needs.

Adjust staff and other resources to fit changing circumstances, reassigning responsibilities if necessary.

Expand in-service and professional training activities.

Develop and refine all techniques, including leader training, which will *(See Production Efficiency, page 42)*

Farm and Home Development Advances Efficiency

by J. E. STANLEY, *District Agent, Mississippi*

TIME after time, as a county agent, I made such statements as: "How I wish I could spend more time with farm families so that I might see them through on planned farm and home programs;" or "It would be a real pleasure to work more closely with that family if only time would permit."

Enough time to counsel with individual families wasn't available to county agents 20 years ago, nor is it possible today to the extent desired. I have felt for many years that such a method of extension teaching had a definite place. And the Farm and Home Development approach is an answer to this need.

This teaching method has many advantages. To put over the best teaching job, which will result in the acceptance and use of better practices on the farm, the agent must establish himself and gain the friendship and confidence of the family. Since he works mainly with a selected group, he can spend sufficient time with each family to accomplish this.

The agent has an opportunity to spend enough time on each farm to become familiar with its possibilities. He and the family can determine the farm's ability to produce, what is needed to reach its potential, and best land use for each area of the farm.

There is time for the agent to sit down with the farmer and his family, discuss the farm possibilities, and help them work out both an annual and a long-time farm plan. This farm plan may include the addition of new farm production incomes as well as more efficient production in the existing enterprises.

After the family has planned the farm program, the agent in Farm and Home Development has an opportunity to follow through and give the family guidance and assistance in making the plan work. This is possibly the most important part of all, since plans which are made and then forgotten have no meaning, but actually result in a waste of the planning time.

An example of this close work between county extension workers and individual farmers is the case of dairyman Lester Thomas of Tippah County. His milk production and farm income have nearly tripled since he enrolled in Balanced Farm and Home Planning.

Importance of feeding cows according to production is explained to dairy farmer by Associate County Agent C. B. Betterton.

Thomas' dairy production seemed unreasonably low so he and C. B. Betterton, then associate county agent, went to work to find the cause. Thomas was feeding ample amounts to all of his cows, but the feed was extremely low in protein. Almost overnight after the protein content was stepped up, his cows began putting more milk into the bucket.

Along with the improved feeding program, Thomas began weighing the milk from each cow and feeding according to individual production. He also began keeping accurate production records and used this information in culling and continuing to improve his dairy herd.

Improving Income

More income for more farmers resulted from Balanced Farm and Home Planning in Tishomingo County. Farmers and extension agents located markets and worked with feed dealers to set up a commercial egg program. Farmers taking part in this new source of income operated both as independents and as participants in integrated programs.

Mr. and Mrs. Travis Cain, Balanced Farm and Home Planning cooperators, had been producing broilers, but sharply fluctuating prices made this unsatisfactory. A reasonable alternative was a switch from broilers to laying hens.

The Cains have expanded their commercial egg program from 5,400 pullets to a present laying flock of 7,000 birds, plus 4,000 replacement pullets. They have also built a new home and enlarged and improved the laying houses. They are sold on Balanced Farm and Home Planning.

As these examples show, the Farm and Home Development approach promotes efficiency in production. And higher net income realized through efficiency enables the family to attain their goals.

Taking Out the Guesswork

by W. C. WHITE, *Extension Agronomist;* W. C. WILLIFORD, *Hoke County Agent; and* G. D. McCART, *Agronomist, State Department of Agriculture, North Carolina*

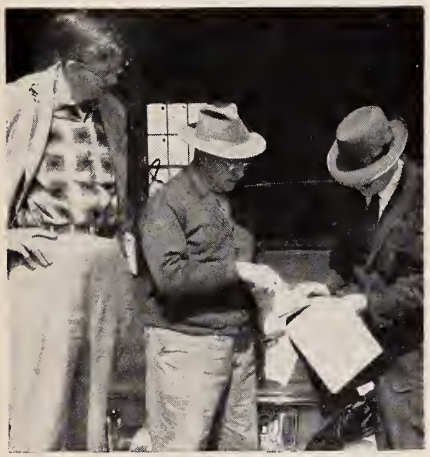
One of the first steps in promoting soil testing is to show farmers how to take good soil samples.

Soil tests of every farm—more than 1,000—in the county. That was an ambitious goal set by Hoke County farmers in 1958. And they reached it, thanks to the Big Test program.

Every farmer participated in the seven communities of the county. Nearly 6,000 soil samples were collected—more than had been collected in the 15 previous years.

Many North Carolina farmers spend as much as 10 percent of their total earnings for fertilizer and lime. So they want to get every dollar possible for each one spent on these items. To realize such returns, however, plant nutrients must be applied according to nutrient levels in soils and to requirements of various crops. This was why farmers in Hoke County started a county-wide soil testing program in 1958.

Net farm income had gone down for several years for these farmers. Reduced cotton and tobacco allotments were among the reasons for this trend. But it was apparent to county agricultural workers that farm income could be improved considerably by increasing efficient crop production—reducing production costs per unit of yield.



County agents have real opportunity to help farmers by interpreting soil test results.

Here's where soil testing enters the picture. It is the best means for farmers to learn soil fertility levels and to determine what nutrients and how much to add for most efficient crop production. So a program was launched to get every farmer to apply lime and fertilizer on the basis of soil tests.

Widespread Cooperation

Nearly every group and agency in the county took a part in this Big Test program. The agricultural workers council and the agricultural committee of the Raeford Chamber of Commerce led in planning the program, which was carried to farmers through fertilizer dealers, Ruritan Clubs, Farm Bureau, Grange, home demonstration clubs, 4-H Clubs, Future Farmers of America, Boy Scouts, county commissioners, and local store operators. Newspapers and radio helped draw and hold interest.

The spark used to stimulate participation was a plan for giving special recognition to communities where all farmers took at least one soil sample by a specified date. Competition between communities aroused much interest. The county agent, other county agricultural workers, and soil specialists explained how to take good samples in each community. Every farmer had an opportunity to learn how to take a representative soil sample—the first step in getting good results from a soil test.

Fertilizer dealers and local store operators played a key role. They passed out soil sample boxes and information sheets to farmers and explained the value of soil testing. They also picked up samples at collection points in the county for a truckload trip to Raleigh. This saved a large postage bill.

It was anticipated that farmers would ask fertilizer dealers about soil test results and recommendations. So special training meetings were held for the dealers where soil specialists explained how to interpret the test results and recommendations.

This training was important. The dealers reported that about three-fourths of the farmers brought their soil test recommendations when they came to buy fertilizer.

A number of soil fertility demonstrations were conducted to show that recommended fertilization paid. Signs provided by the fertilizer industry and organized tours attracted considerable attention to the demonstrations. These demonstrations helped convince farmers that soil testing takes a lot of the guesswork out of fertilization practices.

Fertilizer sales for the county in 1958 were 14.7 percent greater than in the preceding year. Additional fertilizer which the farmers bought in 1958 over 1957 cost about $35,000. But they are confident that a large part of the estimated $1.75 million increase in total agricultural income over 1957 was due to more efficient crop production resulting from the use of fertilizers based on soil tests.

There has been genuine interest in the Hoke County plan and the results speak for themselves. Several other North Carolina counties are now conducting Big Test programs. But the job in Hoke County is not complete. Plans are underway to work intensively with all Farm and Home Development families and to increase efforts to encourage use of lime according to results of soil tests.

Getting at the Root of the Problem

by CLEON M. KOTTER, *Information Specialist, and* R. W. BUCK, J. M. HALL, *and* E. L. GUYMON, *County Agricultural Agents, Utah*

When farmers are faced with a problem, the county agricultural agent has to be armed with all the facts about its cause as well as possible solutions.

An increasing disease problem confronted potato producers in south-central Utah, including Piute, Wayne, and Sevier Counties. Unless something was done it was plain that the potato industry would fail in this part of the State.

We agents had a general idea of the situation but needed concrete evidence that would aid us in getting at the root of the problem. Extension Agronomist Louis A. Jensen and Golden L. Stoker, secretary-treasurer of the Utah Crop Improvement Association, came to our assistance by developing a survey for obtaining and presenting a true picture to the growers.

With the cooperation of the county agent supervisors, a course of action was jointly planned and we scheduled time to contact the growers in our counties. We obtained the answers to 38 survey questions to determine farmers' potato-producing practices.

Outdated Practices

One question brought to light something we had long suspected—many growers do not know what is meant by certification. Because certified seed had been planted at one time, some growers were still calling their potatoes "certified" even after they were several years out of certification.

The survey also revealed that a number of growers were partially following a seed practice recommended several years ago by the Extension Service. They would plant a seed plot using certified seed potatoes and then use these potatoes as seed for their commercial acreage the following year.

We discovered, however, that these growers were not carrying out details which had been recommended before. They were not rogueing their seed plots, nor were they making any effort to select the healthiest potatoes for seed. In fact, invariably they were selling the commercial size potatoes from their seed plots and keeping only the small stuff for seed.

Since leaf roll has become a big problem in potato diseases, this practice actually helped multiply the problem. Leaf roll results in small, smooth potatoes considered "ideal for seed."

During the growing season Jenson and Stoker made field inspections and detailed disease readings on about 10 percent of the survey fields in each county. They found a close correlation between the type of seed and amount of disease.

Fields planted that year with blue tagged, certified seed were relatively free from disease. On the other hand, fields planted with noncertified seed ran as high as 70 percent infestation of leaf roll. They found many examples of so-called "seed plots" which showed that seed just 1 year from certification can become so contaminated with disease that a grower is taking a great chance with his yield to plant those potatoes for seed.

Piute County Agent R. W. Buck, left, and potato grower are enthused about yield of quality potatoes produced from certified seed.

Following the survey, which included 145 growers and 2,053 acres of potatoes, these men spent a day in each county meeting with the growers. They pointed out the following survey conclusions:

Low yields were considered a major problem by about ⅓ of the growers. About 90 percent thought low prices were their major problem. Some 50 percent of the growers indicated that disease was one of their major problems.

Most growers were applying manure but few used any commercial fertilizer, although tests showed that they needed to use more phosphate. Spring plowing was done by most growers, even though fall plowing is recommended.

Less than 20 percent of the acreage was planted with certified seed. Most seed is purchased direct from the grower and less than ⅓ of the growers were treating their seed.

On the most prevalent variety, fields from noncertified seed had 14 times more disease than fields planted to certified seed. Leaf roll was the predominant disease, with potatoes from individual diseased plants averaging only ⅕ to ⅓ as much production weight as those from healthy plants.

Encouraging Results

These results motivated many growers to use certified seed. In Piute County, there was a 400 percent increase in the use of certified seed in 1958 following the 1957 survey. Indications are that even more would have been planted if enough certified seed had been available.

Improved results from planting straight certified seed are reported by growers like Rex Whitaker of Circleville, who had previously used the seed-plot method for his seed source. He says, "Planting all certified seed more than paid for the extra cost. I got it back 10-fold. My

(See At the Root, page 32)

RIGHT DEMONSTRATION at the RIGHT TIME

by A. S. GREATHEAD, *Monterey County Farm Advisor, California*

THE age-old principle that man learns best by seeing has once again proven true. Good extension techniques in the application of this principle have overcome language and nationality barriers in the artichoke industry of Monterey County. The recipe in this instance was simply repeated demonstrations over a period of 8 years by the farm advisor cooperating with a handful of growers.

For many readers, the artichoke may be an entirely foreign vegetable. It is eaten mostly by people of Mediterranean extraction, but many others have acquired a taste for it and it is shipped all over the nation. Monterey County produces about 60 percent of the nation's supply, so it is an important crop to our area.

Insect Problem

Ever since the introduction of the crop into the United States, the larvae of the artichoke plume moth have been causing damage. This worm feeds on the young bud, boring into the center and making the artichoke unfit for sale. Losses at times have ranged as high as 60-70 percent for the entire year.

For the last 10 years damage has been consistently high with many artichokes being thrown away in the field, loads of packed boxes being rejected by the inspector, and high labor costs because every artichoke must be inspected closely before packing. These things have cost the growers thousands of dollars annually.

To understand why this situation has persisted, it is necessary to know a little of the background of the industry. Most of the artichoke growers are first generation Italian immigrants, a closely knit group. Many can speak little English, and the rest have some difficulty with the language. They are a sturdy hard working group of fine people. The language and nationality barriers, however, have made it difficult for someone not familiar with them to work in their midst.

A number of second generation men are taking over the management of some of the ranches. They have proved to be our best contacts.

The entomology department of the University of California has spent a great deal of research time on the artichoke plume moth problem. Because of the peculiar habits of the insect and the nature of the artichoke plant itself, control of this insect has presented more than the usual number of problems. Timing, specialized application equipment, and residues have all been difficult to work out.

No Acceptance

At an industry-wide meeting in 1949 the Extension Service presented to growers all of the known information and suggested a control program which would have given some relief from the devastating damage. It was hoped that the growers would start on a control program and that through its usage better and more satisfactory control measures would develop. However, nothing was done about the suggested program. Not a single grower tried it.

In succeeding years a great deal of local experimental and demonstration work was done by the farm advisor in cooperation with the entomology department. Other than further substantiating in our minds the effectiveness of the proposed control program, these demonstrations induced no one to start treating. It was not that they were not interested in the work or in control. They just weren't convinced that all the extra effort and money would be worthwhile.

In the meantime, a small artichoke growing area to the north put this program to good practical use and was getting excellent worm control. Success in that area was due entirely to the efforts of an Italian speaking farm advisor. Although good reports filtered down from that area, the program still didn't take hold in Monterey County.

Finally, weary of much fruitless effort, the local farm advisor took three growers to San Mateo County where the control program was being effectively practiced. The farm advisor there gave them a ranch tour

(See Right Time, page 47)

COUNTY DECLARES WAR ON GRASSHOPPERS

by DANNY D. TRAYER, *Finney County Agricultural Agent, Kansas*

WAR was declared in Finney County last June—war on a grasshopper population that threatened crops in Southwest Kansas. And it was won by Finney County farmers who went into action immediately to meet this threat.

The severe grasshopper threat developed in the spring. Late flights of migratory grasshoppers in the fall of 1957, followed by a mild winter and ideal hatching conditions in the spring, produced a tremendous hatch of grasshoppers. Estimates ranged up to 1,500 grasshoppers per square yard in the area.

Immediate Action

Entomology Specialist Dell Gates and I checked the grasshopper population when the spring hatch was just getting started. This check gave definite evidence of a critical grasshopper situation. I discussed the situation with the county commissioners and received approval to start a campaign against the grasshopper infestation.

The county program was designed to start immediate action. Considerable information was released in early June through radio and newspapers to alert farmers to the severe grasshopper threat. During the same week, spray materials were distributed at reduced cost to farmers. Farmers were alloted the amount necessary to spray roadside, field border, irrigation ditch, and other marginal areas on their farms and in their communities.

Growing Interest

During a 3-day period, 393 gallons of 4 lb. Aldrin and 165 gallons of 1½ lb. Deildrin were distributed to about 250 farmers in the county. This was enough material to cover approximately 15,000 acres as a border spray and spraying a strip two rods wide for about 3,700 miles long.

This 3-day program created a definite stimulus to the volunteer program carried out in the county. Commercial sources distributed 2 or 3 times as much as sold through the county program.

Farmers banded together in several communities and hired aerial operators to spray all roadside, fence row, and field border areas. Alvin Lillibridge of Kalvesta organized most of a 6-mile square township that followed through with this plan.

Other areas fought the problem by getting several ground spray rigs together and working systematically on their community. The larger portion of the work was done, however, by individual farmers on their own farms and roadsides.

The agent spent full time during the month of June distributing information concerning grasshopper control. This is the first time farmers were organized in such an extensive spraying control program, using modern chemicals and spraying methods.

The grasshopper control program spread over the entire southwest Kansas area. A Federal emergency grasshopper control office was set up to service western counties in a roadside spraying program. This program did a good deal throughout the area in controlling grasshoppers but Finney County did not participate as most of our work had already been completed.

Finney County farmers did an outstanding job of getting spray materials applied at the right time. They met the grasshopper problem head-on and conquered the critical areas.

AT THE ROOT

(Continued from page 30)

yields increased from 250 to 400 bushels per acre. If a person is going to raise potatoes, he might as well get seed that will grow them."

Bill Thompson and his son, Don, said that their yield had also doubled by the use of all certified seed. Also significant, they pointed out, is the increased percentage—as high as 50 percent—of potatoes 10 ounces or larger.

Discounting the differences in rainfall, growing season, and other factors, we agents conservatively estimated that the use of certified seed has been directly responsible for a 25 to 30 percent increase in yields. The survey of the causes for low yields gave us the facts to meet the educational challenge posed by this potato disease problem.

This challenge was well summed up by grower Arthur Gottfredson. "The trouble is," he says, "most of us farmers think we can't afford to do what we can't afford not to do."

applying research for results

by ALBERT T. HALL, *Almont Township Extension Agent, Michigan*

Corn for silage and for grain is one of the most important crops in Michigan. Farmers who grow average yields of corn here usually find themselves somewhere near the break-even point.

Obviously, the farmer who wants to realize more than cost of production must take steps to secure more efficient yields. This means that in some way he must reduce the cost of producing a bushel of corn or a ton of silage. He must grow corn more efficiently.

Michigan State University researchers and extension workers have long recognized this and have sought and developed production practices which contribute to more efficiency in corn growing.

Once-over or minimum tillage, developed and promoted by Dr. R. L. Cook, present head of the soil science department, is now widely accepted by corn growers. It means a saving of $3 to $5 per acre in cost of seed bed preparation. In controlled experiments it has yielded more corn per acre than conventional tillage methods.

Research Findings

Research by Dr. Elmer Rossman of the farm crops department has shown that early planting—as soon as the soil reaches 50°F. and can be safely worked—gives consistently higher yields than corn planted 2 or 3 weeks later. Rossman, who has developed several high-yielding adapted Michigan hybrids, also emphasizes the importance of adequate stand to efficient production.

Methods of getting satisfactory weed control through use of chemicals and a minimum of cultivation have been worked out by Dr. B. H. Grigsby of the botany department and Prof. Boyd Churchill of farm crops. Materials have been made available to county agricultural agents, who in turn have made on-the-farm demonstrations.

Fertilizer placement experiments conducted by C. M. Hansen of agricultural engineering and L. S. Robertson of the soils department have shown that definite yield advantages can be obtained when fertilizer is placed in a band 2 inches below and 2 inches to the side of seed.

Results obtained during several years of comparing hybrid corn varieties have shown that there is not much difference in the yielding ability of early maturing and later maturing varieties. This is important in Michigan, where during some years weather conditions are less than optimum for corn growing. For many years these comparison trials have been harvested, observations made, and results published for distribution to corn growers and seed corn companies.

In 1951, after observing that these efficiency increasing practices were not being generally adopted, farm crops and soils specialists decided to conduct a corn field day in one county. Held in cooperation with the county agent, the field day included demonstrations on minimum tillage, fertilizer placement, plant population, weed control, date of planting, and varieties. Over 500 people attended the showing of demonstration results at harvest time.

Encouraged by response to this demonstration, specialists from the departments of farm crops, soils, agricultural engineering and botany banded together to offer help in conducting corn field days in other counties. Each year since 1952, 3 or 4 counties have been involved in such demonstrations.

At the end of the 1958 season, a total of 21 such field days had been held in the southern half of the lower peninsula. Over 10,000 corn growers attended these affairs.

In recent years the showing of results took place in one day. In the forenoon during conducted tours, extension specialists and agents discussed results obtained in the various demonstrations. In the afternoon, farm machinery companies demonstrated their harvesting, handling, and drying equipment.

Proving Its Use

Many Michigan corn growers have adopted the practices demonstrated. In 1951, when the first field day was held, the long-time average yield of corn in the State was 38 bushels. In 1958, it was 56 bushels. In 2 of the past 7 years, farmers of Michigan produced over 100 million bushels. Such yields were unknown before the start of the project.

With the help of a farmer committee, we conducted a corn growing contest in Almont Township. Before the contest, average long-time yield was reported at 45 bushels.

Purpose of the contest was to bring about more efficient production of corn. Meetings were held and literature prepared to acquaint growers with new practices. Farmers were given individual help and encouragement.

Average yields secured in the contest by over 40 participating farmers were 85 bushels in 1955, 95 bushels in 1956, and 98 bushels in 1957. Each year a comprehensive report of results from more efficient practices has been made available to all farm-

(See Applying Research, page 34)

From Research to Adoption

by WILLIAM E. GILL, *Agricultural Engineer, Ohio*

When farmers are faced with production problems, research and extension team up to help reach solutions. This is a pattern long used to help increase efficiency in agricultural production. And it's the same way band seeding was developed and introduced in Ohio.

Many farmers in Ohio had difficulty in obtaining satisfactory stands of legumes until the band seeding method was developed. Then in 1950 research agronomists, J. L. Haynes and L. E. Thatcher, reported in Ohio Farm and Home Research magazine that band seeding was an improved method that looked very promising.

This seeding method consisted of placing the legume seed in a row or band directly over the fertilizer band so the seedlings could reach the fertilizer immediately after germination. Station researchers used an ordinary grain drill with a simple modification. The end of each grass seed tube was inserted into a ½-inch hose, which was long enough to reach behind the disc and tie to the furrow opener where the covering chains were attached. This permitted the grass seed to fall immediately back of the fertilizer tube and above the fertilizer band.

Spreading the Word

The Ohio Farmer, a bi-monthly publication which reaches three out of four farmers in the State, carried a feature article on band seeding in April 1950. Another article on band seeding trials appeared in August. Accompanying it was a photograph of a three-acre strip which a Medina County farmer had prepared for summer seeding, using the band method with an old hoe drill.

The researchers reported that this method was not a cure-all but merely another aid in obtaining satisfactory stands. But they suggested that farmers who were dissatisfied with present methods might try band seeding on a small acreage.

This was all that was needed to encourage some farmers and county agents to give the method a trial. One example is in Delaware County where County Agent Paul Cunningham used all media available to promote the new method. He described it in his weekly newspaper column, presented it at winter extension meetings, and discussed it in the adult evening classes at the six Vocational Agricultural Departments. Cunningham estimates that 25 or 30 drills were modified and used in band seeding trials in the county during 1950.

The same year, Cunningham and nine veterans' school instructors toured several farms to see results of band seeding. The instructors then discussed their observations with the 250 young farmers in their classes.

Field Days

Four hay and pasture field days or tours were held in Delaware County to introduce the band seeding method. Fifty to 100 farmers attended each tour and observed the difference between usual methods of seeding and the band method.

During the tours the new seeding method was discussed by the extension agronomist as well as the county agent and farmers using the method. Recordings with the agronomist and farmers using the method were made by WRFD Radio Farm Director Clyde Keathley for use on his program.

In subsequent years, field day speakers and county newspapers continued to call attention to seedings made by the band method. Cunningham estimates at least 50 percent of the farmers in Delaware County now are using the band seeding method or some modification of it.

To meet their own needs, farmers made several drill modifications of the original arrangement used by the experiment station. Eventually most drills were equipped with seed tubes

Drill used in 1950 band seeding trials in Ohio. Note board holding seed tubes in place. Seed box has been moved from front to back of drill.

held 8 to 10 inches back of the fertilizer tubes and about 1½ inches above ground level. This permitted the fertilizer to be completely covered before the seed was dropped.

Some farmers removed the grass seed tubes from the fertilizer tubes and attached short pieces of hose (about one foot) which broadcast the grass seed on the ground behind the drill discs. These farmers are getting better stands than before, even though they haven't gone all the way to band seeding.

Use of the band seeding method has resulted in more regular stands and consequently higher yields. It's a good example of research and extension teamwork to get a practice from research to adoption.

APPLYING RESEARCH

(Continued from page 33)

ers. Minimum tillage, chemical weed control, thicker plant population, earlier planting, use of better adapted varieties, proper fertilizer placement, and other cost reducing practices are becoming more widely adopted each year by the township farmers. The contest has been repeated in other areas and is achieving similar results.

Forward-looking agricultural research, brought to Michigan corn growers by a team of well trained specialists and dedicated county agents, is bringing about cost reducing, profit-increasing efficiency in the production of corn and other crops.

BOOSTING COTTON QUALITY

by **FRED C. ELLIOTT,**
Cotton Specialist, Texas

Right combination of practices from early stalk destruction through to defoliation for machine harvesting produced this cotton field which yielded 1.5 bales per acre.

All of us connected with the cotton industry know that cotton is often subjected to factors which can lower the quality at harvest time.

The damaging effect of weather (excessive rains and early frost) on the 1957 cotton crop caused widespread concern. The immediate result was a sharply reduced income for thousands of growers.

There also was alarm over the long-run effect on future demand. Even though a surplus existed, in terms of quality the cotton supply was badly out of balance. Mills substituted low grades for high, but at discounts.

At the same time, we knew that something could be done about cotton problems. This confidence is the result of our success in organizing and carrying out the Extension 7-Step Cotton Production Program, which was initiated in 1946. These 7 steps are: Fit cotton into balanced farming; take care of your soil and water; get together on the best variety; follow practical mechanization; control insects and diseases; harvest, handle, and gin for high grade; and sell for grade, staple, and quality value.

We have seen per acre yields more than double in Texas during the last 12 years. In the middle forties, our yield averaged just under ⅓ bale per acre. It has steadily increased to the highest yield on record this year, 379 pounds lint per acre. The per pound cost of production has held constant in this decade and continued progress should result in more efficient cotton production.

In terms of quality then, just what were our problems? What could Extension do toward solving them? Obviously the facilities of the Extension 7-Step Cotton Program should again be employed and concentrated on pinpointed objectives.

Arming for Action

Under this framework, extension workers have organized and presented to producers the best results from research conducted at 17 substations of the experiment station and demonstration results from cotton farmers' ingenuity. In doing this job, cooperation has been obtained from all agencies in a position to help. Allied cotton interests including ginners, oil millers, insecticide and fertilizer dealers, machinery and implement dealers, bankers, newspaper and radio directors, and farm organizations have actively supported the program.

A county 7-step cotton committee, or other subcommittee of the county program building committee composed of these key people and leading cotton farmers, has been organized in each major cotton growing county by the county agent. This group plans and carries out the program in the county, insuring organized activity on a county and community basis.

To set the machinery in motion for 1958, the first conference was held in September 1957. At this meeting it was agreed that new publications were one of the needs of the program.

It was also pointed out that grade and staple are no longer adequate to describe cotton quality. Use of the micronaire and other fiber testing instruments has become well established. This new technology clearly shows that fiber "character" or such properties as maturity, strength, and uniformity can be pinpointed for all grades and staples.

At a second workshop-type meeting, extension and research personnel along with cotton interest representatives discussed and assembled much of the basic material from which extension specialists completed a popular leaflet, Growing High Plains Cotton for Better Quality and Greater Profit. Effective use of this leaflet was made in an aggressive extension program with the active support of the allied cotton interests such as the Texas Cotton Ginners Association and the Plains Cotton Growers.

It was well known that late application of irrigation water contributed to low micronaire or immature cotton as well as light spotted grades. Two extension agronomists and an extension agricultural engineer jointly prepared a new irrigation guide, Texas Guide for Growing Irrigated Cotton. This was published in March 1958 and received wide, effective distribution and use. About 2 million acres of the 5.3 million acres harvested this year were irrigated.

A third new bulletin, Keep Cotton Dry-Loose-Clean, was prepared and used in the quality improvement pro-

(See Cotton Quality, page 44)

In Cotton Harvesting

Extension-Industry Cooperation . . .

by W. T. WELCHERT, *Agricultural Engineer, Arizona*

Mill complaints about the quality of cotton harvest and handling spurred the industry into an uproar. Positive control of quality in the synthetic fiber industry spotlighted quality defects in cotton. Fiber damage, picker twist, oil, grease, tar, rough preparation, and all manner of rubbish was blamed on machine and hand harvesters and their apparent incompatibility.

The producer blamed machinery and the ginner. The ginner blamed the producer and machinery. The machine dealer blamed the producer and ginner. Add to this the classing office, truckers, warehousers, market organizations and you have everyone blaming everyone else.

Research and industry groups had pretty well determined the causes and effects. Recommendations were made available by the cooperative effort of Federal extension engineers, the National Cotton Council, machinery manufacturers, ginners, etc. An awareness of quality defects, trained machine operators, and a cooperative attitude between the various cotton handlers were essential.

Separate treatment of machine and hand-picked cotton required a cotton grouping plan. But the ginner said cotton grouping wouldn't work because the producer wouldn't stand for it. He would lose his customers if he insisted. Producers didn't think their neighbors would cooperate.

Merging Views

Our extension group realized that recognizing these problems and beating the drums with our information channels to all these groups would not be enough. So we called a meeting of the leaders of State-wide groups. Representatives of the implement dealers' association, cotton growers' association, ginners' association, cotton classing office, research, extension specialists, and county agents from all cotton counties met at the university.

Each was asked to present his quality harvest preservation problems and how other members of the industry might help. The group concluded that with extension leadership, a cooperative educational program should be conducted in each cotton county, with representatives of all groups presenting their side of the story.

We then asked each of the State groups to recommend a member of the organization in each county to serve on a county team to plan and execute an educational program, with the county agent as chairman. Basic quality harvest preservation resource information was prepared and presented to the county teams by the agricultural engineer. County teams planned training schools for all industry members and coordinated follow-up machinery dealer training schools for operators and managers.

While each county program varied in form, all presented the same basic information. The county agent set the stage, an outside speaker presented the overall problem, and the industry representatives gave their side of the story.

In most cases the county team members effectively presented their industry problems and how each group could help. The fact that these industry leaders took the time necessary to prepare presentations was a strong factor in the application of the recommendations.

Attendance at the quality preservation meetings was good but not spectacular. More important than attendance was the good representation of a cross-section of the industry leaders discussing the same problems.

This program was carried out for two successive years. What were the results? The mill industry's complaints of picker twist and grease stains have almost completely disappeared. Relations within the industry improved. Several ginners who had been reluctant to cooperate in the program the first year insisted that we must continue even if they had to finance the whole program. Those who insisted that cotton grouping wouldn't work can't remember why.

While the job is far from finished, the emphasis has already changed. A spirit of cooperation, progress, and optimism now exists, where division, resistance, and pessimism reigned.

Better understanding of cotton harvesting problems has boosted quality and improved industry relations.

In Ginning

. . . A Powerful Educational Team

by J. M. RAGSDALE, *Ginning Specialist, Missouri*

Cotton gin operators today get training which puts them in a class with factory trained mechanics. Long search for such training has led to our present-day gin operator schools. These are a result of voluntary teamwork by Extension and the cotton ginning industry.

Gins must do a good job with rough, hand-picked and machine-picked cotton, or they don't get customers. New machinery and trained gin operators put extra dollars in the growers' pockets. In the late forties up to 12 percent of Missouri's cotton was downgraded because of rough preparation or poor ginning. Since 1953, less than half of 1 percent has suffered in price.

In 1940, the most modern gin could be built for $25,000-40,000. Today a modern plant equipped to handle cotton properly costs $175,000-200,000. Some increase is due to inflation, but most represents new machines which were not even on drawing boards a few years ago.

Progressive ginners were quick to modernize or build new plants. Operation of these modern gins in contrast to the old ones is similar to a high-powered fully-equipped automobile compared with a Model T. The problem now is to teach the ginner to operate such machinery to preserve the inherent qualities of cotton.

Missouri's extension files contain a large picture with some 300 men in front of a school building. The caption says, The World's First Gin Operator School, Portageville, Missouri —1945. In comparing that program with present day gin schools, there is the same contrast as the cars above.

New machines were discussed by Federal extension ginning specialists and research scientists from the Stoneville laboratory. On the last day of the school, the group was divided according to makes of machinery and instruction was turned over to various gin machinery manufacturing companies. During the meeting, these companies ginned two or three bales of cotton. No training aids were available and extreme dust and noise were not conducive to the learning process. This same type of school was repeated in 1951.

Factory Schools

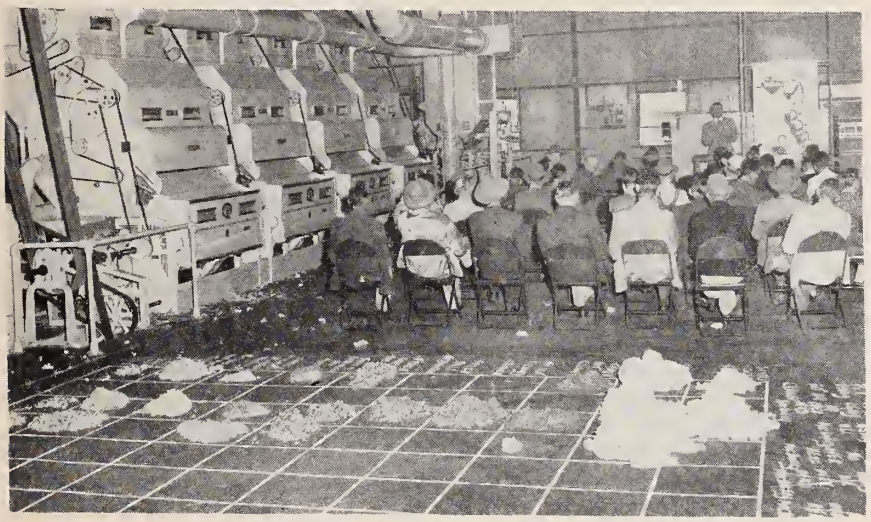
While this type of school proved valuable to the cotton industry, something better had to be found. State and Federal ginning specialists hit on the idea of taking the ginners to school rather than taking schools to ginners.

So in 1953, with the cooperation of the entire ginning industry and ginners associations, the first factory schools were established. Participating in the first year schools were Missouri, Arkansas, and Tennessee. But the news got around and ginners showed up from Georgia, Alabama, and as far west as Arizona. The following year Louisiana and Mississippi joined to form the Mid-South Cotton Gin Schools.

Schools were continued in 1954, 1955, 1957 and will again be held in 1959. Total attendance has been 2,996. At least 75 percent of Missouri cotton gin operators have attended one or more schools.

The pattern of instruction follows that found in a modern high school or college. Machinery is divided into groups according to function—drying and cleaning, bur machines and heavy extractors, gin stands and feeders, lint cleaning, fans, pumps, motors, etc.

Students in groups of 40-50 spend about 2 hours on each subject until, at the end of the 2-day school, complete instruction is received on all machines. Engineers and salesmen become instructors. Gin machinery manufacturers come up with posters, diagrams, stripped down machines, and other training aids.



Class in cotton gin operators school.

Top Quality

The ginning job in Missouri in 1958 was outstanding. It was just about impossible to find a poorly ginned bale of cotton. Some of the roughest cotton is being changed into spinnable fiber at today's modern gins. It would have been worthless if ginned 25 years ago.

At the close of the 1953 school, a leading cotton paper said editorially: "Ginning Schools now being conducted by gin machinery manufacturing companies in cooperation with Extension Services and ginners associations

(See Powerful Team, page 44)

Show How to Get Know-How

by J. O. YINGLING, JR., *Associate Poinsett County Agent, Arkansas*

THEORY put into practice through two field days has keynoted an aggressive land forming program in Poinsett County. These field days played a material part in the program that has resulted in the forming of 5,989 acres for irrigation since 1955.

Poinsett County is made up of three major soil areas—the northeast Arkansas terrace, Crowley's Ridge upland, and Mississippi River bottomland. The terrace soils area, where rice is the principal crop, comprises 200,000 acres. The bottomland, with cotton as its principal crop, contains 245,000 acres. These two areas have common problems of inadequate drainage and inefficient irrigation.

Seventy thousand acres of rice, cotton, soybeans, corn, and lespedeza were irrigated in 1958. But the need for additional supplemental irrigation is great. It was determined in a 1955 survey that 126,000 acres in the county can be irrigated if a thorough job of land forming is done.

As a result of this survey, extension agents saw the need for developing an educational program to stimulate interest of farm operators in the practice of land forming. This would not only facilitate efficient irrigation but would ease the problem of inadequate drainage.

We decided that land forming field days gave a better opportunity for reaching more people than any other approach. The field days were arranged by extension workers in cooperation with Soil Conservation Service personnel and local equipment dealers.

The first field day was held in September 1955 in the eastern part of the county. Another was held the next year in the western part of the cotton area, which has different soil characteristics.

All implement and equipment dealers in the county and surrounding areas were contacted about 6 weeks prior to the field day and responded beyond our expectation. After getting these commitments, we selected a 15-acre field along a highway. By having the field day along a highway, a large number of people were attracted that otherwise would not have attended.

Action on the Site

SCS technicians chained and staked the field in parallel lines 100 feet apart. Then they made a topographic survey of the field and prepared a cut sheet showing the amount of cut and fill at each station. Stakes were then painted, using red to designate cuts and green for fills, so demonstrators could determine the proper treatment for each station without having to refer to a cut sheet.

The county agent opened the program by explaining the purposes of the field day. Then James L. Gattis, agricultural engineer, discussed methods of land forming, types of leveling equipment and their adaptability to various types of soil, and cost and anticipated returns from land forming.

An SCS technician explained the characteristics of the field, the amount of yards of soil to be moved per acre, and SCS' interest in land forming. The local ASC manager discussed cost sharing assistance available.

Equipment dealers were given an opportunity to explain the operational features of their equipment before it was demonstrated. Equipment shown included plows, scrapers, land planes, ditchers, and disc breakers.

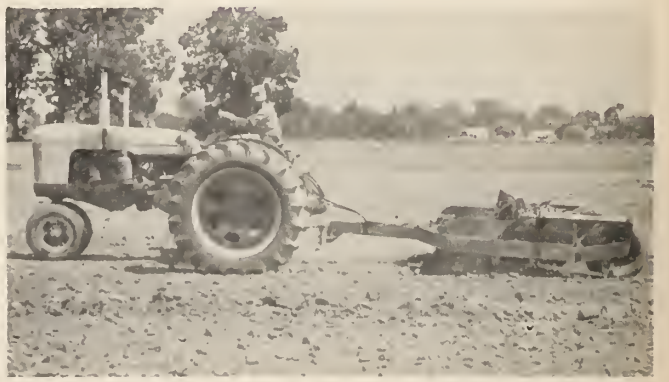
We emphasized that at least one-fourth of the demonstration field was completed to specifications prior to the field day. This gave farmers an opportunity to see the finished product which, after all, they were primarily interested in.

Garner Morrisett has an outstanding example of the results that can be obtained from land forming. He was among the first farmers in the county to do a thorough job of land forming. A 5-acre field was completed and graded to a tenth fall per 100 feet. Morrisett then followed through by having an 8-foot well drilled to furnish water for irrigation.

In 1955 he planted 20 acres to cotton and 15 acres to wheat. From the 20 irrigated acres of cotton, 2 bales were harvested per acre. He

(See Show How, page 47)

Siphon tubes irrigate corn on field leveled the previous year. This field grew crop of wheat and corn the same year.



Poinsett County farmer demonstrates type of earth moving equipment commonly used in that area.

Reservoir of Information

Research and development progress on forage farm is observed by 200 members of Indiana Farm Management Association.

by **LESTER H. SMITH**, *Extension Agronomist,*
and **MAURICE E. HEATH**, *Southern Indiana Forage Farm Director, Indiana*

How can the unglaciated sandstone-shale soils of southern Indiana be made more profitable? To find the answer to the question, farmers and industrialists in the 41 southern counties raised funds to purchase 11 farms or 1,016 acres. They gave this land to Purdue University for research and demonstration purposes in January 1953.

Dean Emeritus H. J. Reed, a staunch supporter of southern Indiana agriculture, appointed an interdepartmental committee representing the fields of agronomy, agricultural economics. animal husbandry, dairy husbandry, biochemistry, extension, forestry, and agricultural engineering to work through the forage farm director in developing a research farm.

The committee set an overall objective of improved land use and increased production through an animal agriculture supported by a forage system. Woodland management got attention too, because 38 percent of the farm is best suited to forestry.

A three-pronged approach to the problems of forage research was recommended by the committee—establishment, production, and preservation and utilization research. Soil and climate make these approaches in southern Indiana different from central and northern Indiana. But when harnessed correctly, soil and climate are two of the greatest agricultural resources in southern Indiana.

The soils are low in phosphorus, potash, and calcium. Runoff and erosion have been problems in row crop culture because of the rolling to steeply rolling sandstone-shale slopes.

Climate gives southern Indiana 44-46 inches of annual rainfall and a frost-free growing season of 180-190 days. However, summer drouth periods occur 4 out of 5 years. These drouth periods are not only a handicap to the production of forage but also force many farm families to haul water.

Establishment and production of forage on the farm has been difficult and many problems have been experienced since 1953. Contributing to these problems have been low fertility, drouth, heaving, and erosion. Nevertheless, much progress is being made.

Sod seeded winter rye in orchardgrass ladino being grazed in early April. Many Indiana farmers are trying this practice.

Forage Farm Findings

Because the Forage Farm is a field laboratory, many grasses and legumes are under test in hopes of finding one which holds promise for the area. Research is underway to study lime and fertilizer needs of these grasses and legumes. This includes various combinations of phosphate and potash for establishing and maintaining high yield forage stands. Nitrogen is getting more attention in a comparison between nitrogen fertilized grasses and grass-legume mixtures.

In 1953 a commercial Hereford herd was provided to furnish experimental animals for forage evaluation and research. In the spring of 1957 a dairy herd was started with 69 heifers selected from 28 southern Indiana counties. They are housed in a pole-type loafing shed. Sheep is the next class of livestock planned for the farm.

Forestry research includes: the most economical methods of rehabilitating previously unmanaged woodlands; growth response of planted hardwoods to various soil fertility levels; growth rates of natural hardwood stands; and amount and kind of reproduction that will result following harvesting operations. In addition to research, the forestry project supplies lumber for buildings.

Research projects of the Forage Farm serve as a tremendous teaching aid for county agents in their job of

(See Reservoir, page 42)

Whole-Farm Demonstrations Show the Way

by C. J. STRICKLAND, *Extension-TVA Programs Leader, Tennessee*

THE unit test-demonstration farm is one of the most successful extension tools used in Tennessee to demonstrate efficiency in agricultural production and management.

Those demonstration farms started in 1934 when land-grant college and Tennessee Valley Authority personnel took a look at TVA's facilities for producing new and improved fertilizers. Then they looked at the possibilities for their use in developing the Tennessee Valley's agricultural resources. The result was a decision to use these fertilizer materials in whole farm and home demonstrations of adjustment to regional needs and opportunities.

These farms are set up to:

- Test and demonstrate the value of experimental developed fertilizers in sound systems of farming.
- Test and demonstrate research results of recommended agronomic, husbandry, and economic practices under prevailing local conditions for optimum use of resources.
- Establish over-all farm and home development demonstrations to serve as patterns in developing sound, economic farm businesses and utilize returns for greater living satisfactions.
- Serve as sites for specific method and/or result demonstrations for introducing or developing new enterprises or practices.
- Develop latent leadership in community, county, area, and State activities.

Under the project agreement TVA supplies fertilizer at discount rates and reimburses the University of Tennessee for salaries and travel of specified personnel. Extension conducts the program in the field. Fertilizers are distributed to test-demonstration farmers by Tennessee Farmers Cooperative.

Planning is a continuous operation with test-demonstrators. Each family makes a statement of its goals, and then the efforts of the family-extension team are directed toward obtaining these goals. Families are supplied information basic to their problems and make all final decisions.

In Tennessee, we are using the test-demonstration program as a fundamental Extension tool to conduct enterprise demonstrations related to the farm and home as a unit.

Then and Now

Before the test-demonstration program was started, Tennessee agriculture was principally a cash crop economy. Farm income came from small grains, corn, tobacco, and cotton. Soil resources were exploited so that the entire State was suffering from erosion, low income, low yields, and low standards of living. Use of fertilizers was limited principally to small amounts of 16 or 20 percent phosphate with little attention paid to lime, nitrogen, or potash needs.

Test-demonstration farms have blazed the way to better fertilizer use. For example, from the beginning emphasis was given to application of test-demonstration fertilizers on soil conserving crops such as pastures, small grains, and hay. There was a two-fold purpose behind this practice: to build and protect the soil, and to emphasize the value of forage in promoting a livestock program to supplement cash crops.

In the early days lime was used at the rate of 2 to 1 for fertilizers. In other words, 200 pounds of limestone mixed with 100 pounds of 47 percent phosphate was applied. This was inadequate, and practices were changed to make applications of 2 to 3 or more tons of limestone per acre. After a few years' experience, test-demonstration farmers found that the rate of phosphate used was also inadequate, and later showed the need for balanced use of fertilizer.

The program has pioneered in developing land use patterns and securing more efficient crop yields. Corn has been moved from the uplands, which are more drouthy and erosive, to the lower lands where there is less erosion and higher moisture holding capacity. Hay and forage crops have replaced corn on the hillside, and the fertilization of pasture has enabled farmers to utilize larger percentages of their land.

(See Show the Way, page 42)

Test demonstration farmers study pasture development and utilization.

DISEASE CONTROL INCREASES EFFICIENCY

by C. W. BURCH, *Extension Veterinarian, Wisconsin*

DAIRYMEN must maintain a high degree of efficiency if they are to realize a profit and continue operating. Disease control is simply another means of increasing efficiency of production. This is especially true in dealing with bovine mastitis. Mastitis causes more economic loss to Wisconsin dairymen than all other dairy cattle diseases combined.

We have used several different approaches to alert dairymen to better methods of control. In all of these we have cooperated with extension workers in the Departments of Dairy Husbandry, Dairy and Food Industries, Agricultural Engineering, and Agricultural Economics.

Working together in this fight against mastitis at the county level are practicing veterinarians, extension personnel, vocational agricultural teachers, dairy plant operators, dairy plant fieldmen, city sanitarians, and public health officials.

Big M's of Selling Milk

The Big M program, Markets-Mastitis-Milking, was employed in over 150 meetings from early fall of 1957 into the spring of 1958. Two extension groups of three members were formed, including a specialist from Dairy Industry, one from Veterinary Science, and one from Dairy Husbandry. Then we planned 12 regional meetings throughout the State, with each team conducting 6 in one week in early fall.

Working through appropriate agencies at the State level, we invited several groups to these regional meetings. Veterinary Science invited all veterinarians to attend the nearest regional meeting. All county extension agents were invited by the State administrative office. Dairy Industry invited city and county health officers, sanitarians, dairy plant fieldmen, and dairy plant operators. Vocational agriculture teachers were invited through the State director of Vocational Education.

Producers were not invited to the first series of meetings. Our objective was to acquaint the above groups with the problem and weld them into an overall team to help correct it.

Following the regional meetings, similar county meetings were scheduled with the county agents. These included one to three or more per county. All producers were invited to these meetings and the material was presented the same as at the regional meetings.

The 3-man extension team discussed mastitis and means of control. This was followed by a panel discussion by extension specialists, 1 or 2 local veterinarians, and 1 or 2 local dairy plant fieldmen. The county agent was moderator.

Control of mastitis depends primarily upon proper management. We stress the role of the local veterinarian and his association with the dairymen. Mastitis should be considered a herd problem and the veterinarian should be consulted on it just as he would be in the case of any other disease.

Suggestions for Farmers

We stress the matter of a dairyman raising all his own replacements and buying no additions. This is the most important single thing any livestock man can do to help prevent disease losses. The majority of diseases are bought and paid for.

We urge dairymen to establish a milking order. It is important, once infected cows are known, that they be milked last, the clean heifers first, the older clean cows next.

We developed a check list for the mastitis control program, including all the points mentioned above, plus a dozen approved steps under milking procedure and 6 or 8 general barn rules. On the back of the check list are seven points of a good sound method of cleaning equipment and a table of recommended cow stall sizes.

The Dairy Husbandry specialist discussed nutrition and its role in mastitis. Although most dairymen believe there is a definite relationship between various types of feeding and mastitis, this is not substantiated by controlled research trials. The team member from Dairy Industry discussed the care, handling, and cleaning of milking utensils and equipment.

One or more team members discussed reasons for insuring that there were no antibiotics in milk. Previously we had prepared and distributed a circular on antibiotics in milk. Copies were sent, through county agents, to every dairyman in the State.

Many sources report that our Big M meetings had a definite effect in reducing mastitis and increasing the average dairyman's knowledge of the disease. This is gratifying but we are

(See Disease Control, page 44)

PRODUCTION EFFICIENCY

(Continued from page 27)

insure the most effective use of Extension educational methods.

It should be recognized that a broadly worthwhile Extension program must feature all nine areas of emphasis as outlined in the Scope Report. All must be tied together intimately.

For instance, efficiency in agricultural production gains nothing for the farmer if the commodities he offers on the market fail to meet the consumer's specifications. In reverse, the marketing specialist must recognize that many marketing problems, particularly relating to quality, can only be solved at the production level.

It should be accepted generally by extension workers that efficiency in agricultural production can be accomplished best with a minimum expenditure of resources. This would include natural as well as economic resources; a continuing high level of production can be maintained only when sound soil conservation and improvement practices are emphasized.

Special Emphasis

Sound management principles must be adopted if the ultimate in efficiency of production can be even partly realized. For Extension this means an emphasis upon the unit approach in planning, calling upon all appropriate competencies in problem solving.

It means also the development of a comprehensive educational program which will equip the farmer and others within the sphere of the business of agriculture with a broad basis of knowledge upon which to conduct their operations. A segmented subject-matter approach to problem solving is outmoded in the light of present day circumstances of rural-urban relationships. Certainly it is unrealistic in the face of the complexities confronting the farmer in his attempt to equate production with demand and high production costs with an unfavorable price structure.

Extension cannot successfully promote efficiency in agricultural production without giving due consideration to those public affairs matters which influence farm operations. This is not a matter of policy determination but is rather an obligation of Extension to assure that within the limits of allotments, cost sharing, zoning, taxation, etc., the farmer can develop production programs which will protect his legal and economic status. The contributions of all agencies servicing agriculture should be considered in farm plan construction to enable the farmer to gain the benefits of all programs appropriate to his individual situation.

Other Rewards

The development of an enlightened leadership among the farming public is a distinct responsibility of Extension. Its accomplishments would benefit not only farming as a profession but also the farmers as individual citizens and as members of their communities.

And efficiency in agricultural production must have its favorable influence in the home itself. If it can be assumed that efficiency has its economic rewards, higher levels of living should be attainable by our farm families. This would mean more financial security, better equipped homes, and more opportunities for education for all members of the family.

Efficiency in agricultural production means more than income itself. Good management should yield more time for recreation and participation in community affairs—at the expense of less physical labor.

The rewards of efficiency in agricultural production, teamed up with the other eight principal objectives of a modern Extension program can include permanence for agriculture as a business dependent upon natural resources and an attractive future for American farm youth who wish to make agriculture their profession.

SHOW THE WAY

(Continued from page 40)

A study covering 1937 to 1947 indicated that permanent pasture, rotation, and winter pasture acreage increased 31.8 percent. At the beginning of this period 2.4 acres were required per productive animal unit; at the end of the period less than 2 acres were required. Total animal units increased 63 percent. Milk cows increased 26.2 percent and milk production increased 18 percent. Net farm income from test-demonstration farms increased 263 percent during the same period.

During the period from 1939 to 1954, fertilizer use increased from 136,971 to 534,310 tons, or 290.1 percent. And the plant food content per 100 pounds increased from 21 to 26½ pounds by 1955.

The test-demonstration program has undergone continual change. As net incomes increased, more emphasis was placed upon the home as a part of the farm unit, thus incorporating both the farm and home as a management unit.

The program has been: the means of increasing net incomes and developing latent leadership; a sparkplug for community development; instrumental in creating a corps of experienced professional workers; helpful in establishing agricultural guidance for communities, counties, and areas; and a direct stimulus for development of cooperative action in soil conservation, purchasing, and marketing. Its pioneering in farm and home development activities is of major importance.

RESERVOIR

(Continued from page 39)

stimulating production efficiency. Each spring the agents meet at the farm and in a closed session with the Forage Farm Committee discuss the operation of the farm and its research program.

Farm people, fertilizer dealers, bankers, service clubs, Soil Conservation Service personnel, and others visit the farm during the growing season. Many groups visit the Forage Farm annually as a part of county extension activities. In the past 5 years, 169 groups totaling more than 6,200 persons have observed research underway at the farm.

This type of organization becomes a program of the counties and not of the Forage Farm.

The Southern Indiana Forage Farm is an excellent example of industry, farmers, county agents, and research workers cooperating to develop a more profitable and productive agriculture in an area where the agricultural potential had never been realized.

Throwing Light on Good Practices

by PHILLIP J. TICHENOR, *Information Specialist, Minnesota*

How electric light bulbs and motors spelled the demise of kerosene lamps and windmills is now an old story on Minnesota farms.

Less often noted, though, is one of the major forces behind the wholesale move toward farm electrification in the last two decades. That force is three-way cooperation among the electric industry, extension and other educators, and Minnesota farmers in making electricity a more widely used "hired hand."

Wide Support

A prime mover in this cooperation is the North Central Electric League, now in its 22nd year. It is supported by nearly 200 private and cooperative power suppliers, electrical products manufacturers, wholesalers, and distributors.

According to A. H. Kessler, executive-secretary, the league started out by putting the emphasis on safe wiring. "The national electrical code needed to be interpreted to apply to farm conditions," Kessler recalls. "So in 1937, the electrical industry and the league published a Minnesota Handbook of Farmstead Wiring. This was a guide to safe wiring, which was well accepted and filled an important need."

Since then the league has launched a wide variety of projects promoting use of electricity on farms, many in cooperation with Extension and the University of Minnesota in general. In World War II, a special Rural Electrical Equipment Council helped answer the questions of power suppliers and farmers about new materials and installation. Industry men, contractors, manufacturers, and extension specialists were on this committee.

In 1945, the league made a situation survey of farms completely wired, partly wired, and those remaining to be wired.

Since 1951, the league has maintained a farm and home electric exhibit at the Minnesota State Fair. A full-time consultant works with member organizations, electrical users, and University specialists in handling individual technical problems. A monthly newsletter for members covers a wide range of technical topics.

Train Leaders

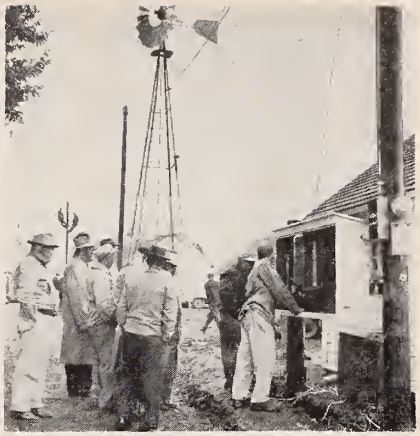
More than 6,000 Minnesota youngsters have taken part in a 4-H electric education project since it was set up in 1946. A private power company sponsored awards for this project in the early years and the league took over sponsorship in 1953. As part of this program, the league sponsors training meetings for adult leaders.

D. W. Bates, extension agricultural engineer, conducts these leader training sessions in cooperation with representatives from both private and cooperative power suppliers. In addition, the league gives an award to each county electricification project winner.

The league in 1954 sponsored a spectacular Wire-Rama, at which hundreds of visitors watched a platoon of electrical workers completely rewire a farm near Shakopee. The purpose? To promote use of electricity and show people what goes into a good wiring job. Extension workers helped the industry promote this event.

To better equip farm advisors—county agents, agricultural teachers, and others—the league recently assembled a Materials Handling Manual. This handbook is a collection of current information on the basic principles of mechanical adaptation which use electricity. Scores of agents and vocational agriculture teachers are using it.

The league and other organizations cooperate with the University every year in sponsoring a Farm Electrification Short Course. Designed primarily for power use advisors, the



Time-honored windmill in background has pumped its last tankful of water on this Minnesota farm. Scene is "Wire-Rama" when electrical crews completely wired farmstead before large gallery of visitors.

event covers several practical aspects of electrification.

A chief aim of the league is to keep up with and even anticipate new trends in electrical power use. A recently developed committee, for example, is studying standards for electric house-heating. Extension Engineer Bates is on this committee, along with representatives from the league power suppliers and the insulation industry.

The above are some examples of the way the league has cooperated in farm electrification education and promotion. The electrical industry has helped in other ways, too.

Hundreds of Minnesota farmers every year go on tours of local farms where electricity is being put to better use. Extension workers and power suppliers jointly sponsor these events.

In Crow Wing County 2 years ago, 100 or more farmers went on a farm efficiency tour, set up by County Agent Ray Norrgard and local private and cooperative power suppliers. While the tour covered several aspects of farmstead planning and construction, electricity was a major topic. On view at the different farms were gutter cleaners, hay drying systems, elevators, feed grinders, silo unloaders and ventilation systems. One farmer showed a workable homemade electrically heated waterer for dairy cattle.

A dairy equipment company a few years ago conducted a different type

(See Good Practices, page 44)

POWERFUL TEAM

(Continued from page 37)

are performing a valuable service to all segments of the cotton industry. Operators of gins are being afforded the opportunity of what amounts to factory training in getting the most effective job done. Modern gin machinery requires a degree of technical skill undreamed of years ago, and unless operators are properly trained to use this machinery, fiber damage will likely result."

The schools as presently conducted will probably be inadequate 5 years from now. But, with an alert Extension Service, a flexible program, and a cooperative ginning industry, adequate schools will be provided.

Cotton gin operator schools are only one phase of a complete gin educational program. Other items include advice on selection and installation of equipment, on-the-spot advice in gin operation, and a program to improve harvesting practices. Extension combined with industry makes a powerful educational team.

COTTON QUALITY

(Continued from page 35)

grams. This popular and well-received bulletin presented recommendations on harvesting, handling, and ginning.

We have a proven procedure for taking information on production practices to growers. Suppose that a new production practice is ready for release. The research data look good, results from field trials are satisfactory, the techniques for use have been worked out, and the new practice is ready for growers. How do we get the information to them quickly and effectively?

Spreading the Word

The research workers and extension specialist get together and decide if the new practice is ready for recommendation.

A new leaflet or bulletin is written and made available to county agents. From the pictures made while the research progressed, a colored slide set is assembled, cataloged, and placed in the film library. A movie may also be made available.

Magazine articles, along with suitable pictures, are published early in the year in leading trade magazines. Circular letters are sent to county agents and news releases to over 600 newspapers.

Radio programs are given and tape recordings made available to the 220 radio stations in Texas. Three-minute TV shorts are filmed and placed in the film library for the 93 TV stations. Illustrated material with scripts for timely spot announcements is sent to the TV stations.

District and sub-district training meetings with extension agents are called and information presented as a part of an organized program. County program building committees make plans for work in the county.

Joint meetings or conferences are held with research and extension workers and representatives of the allied industries, such as manufacturers and suppliers, to check recommendations, formulations, etc.

Commercial companies advertise and stock the materials and equipment.

County agents use usual means: demonstrations, letters, news items, meetings, slides, movies, farm visits, office calls, radio and TV programs, and publications in getting the information to people in their counties.

Thus, the know-how, materials and equipment for any new practice, such as post emergence chemical control of grass and weeds in cotton, can be released. The information can be made available on one practice in several ways very quickly.

GOOD PRACTICES

(Continued from page 43)

of on-the-farm demonstration in Goodhue County, in cooperation with County Agent G. J. Kunau and extension engineers. The company did a complete rewiring job in a dairy barn and milkhouse. The industry furnished most of the materials, with the understanding that the system could later be used as a model for other people to inspect. Shortly after it was completed, the farm family held an open house for visitors to inspect the wiring system.

Bates says, "This industry cooperation in electrical use promotion has resulted in electricity being used more efficiently on Minnesota farms. It has no doubt decreased cost of electricity to the farmer. In promoting a good wiring system, you also promote more efficient use."

DISEASE CONTROL

(Continued from page 41)

sure that we still have a long way to go.

Following the series of Big M meetings, the teams of specialists met in a critique session and discussed establishment of mastitis control demonstration herds in various parts of the State. We selected areas in which there were practitioners who had some type of laboratory facilities of their own or ready access to a local laboratory.

On the local scene, the county agent, veterinarian, and dairy plant fieldman work together to select a mastitis demonstration herd. On the State level, cooperation is between extension personnel in Dairy Husbandry, Dairy and Food Industry, Agricultural Economics, and Agricultural Engineering.

This is an entirely voluntary program, and paid for by the dairymen. All the work on the herd is done by the local practitioner. He examines the herd physically, takes quarter samples, does a bacteriological examination on them, and follows up with whatever treatment is warranted. The herd owner is encouraged to follow recommended management practices listed on the check sheet.

Our aim in this demonstration herd project is to show that mastitis can be brought under practical control and prevented to a large extent by adherence to sound management practices. Demonstration herds can be an effective method of teaching and showing this.

A short course was given for veterinarians last summer on several phases of mastitis prevention, diagnosis, and control. Plans are now underway to give talks at local veterinary associations on how to determine the operational efficiency and cleanliness of physical equipment used in the dairy operation.

This will supplement our efforts to sell the values of sound management procedures and their relationship to mastitis control.

Partners in Developing Leaders

by E. T. SWINK, *Agricultural Engineer, Virginia*

A FUNDAMENTAL concept in Extension is that specialists must develop trained leaders in their subject matter field in order to reach large numbers of people with technical information. This is especially true for technical areas in which the county extension workers have not had training.

Where can specialists find "assistant specialists" with proper technical training to work with them and county workers? One of the best sources is the industry that supplies goods or services related to the subject matter field involved.

Industry can be interested and will do a fine job of cooperating with Extension in educational programs if it is convinced that such cooperation will contribute to its own progress, if it has employees with the necessary technical training, and if its attitude toward the cooperative program is in keeping with Extension's objectives and obligations to the people.

An excellent example of a subject matter field where "assistant specialists" are helpful is farm and home electrification. This was recognized in Virginia back in the early twenties when C. E. Seitz, extension agricultural engineer, began working on the extension of central station electric service into rural areas.

It was obvious that farmers desiring to put electricity to work would need individual help in solving problems of electrical application and that an extension specialist or county agent could not hope to adequately meet this need without assistance. The logical ones to give such assistance were the power suppliers who would serve the rural areas.

Rural electrification was rapidly developing as one of the technical fields of agricultural engineering. Men were being trained in this field and Virginia power suppliers were encouraged to employ them. During the last 35 years, approximately 25 percent of the agricultural engineering graduates at Virginia Polytechnic Institute have gone into rural electrification work—mostly with Virginia power suppliers. These men advise rural users of electric service and cooperate with Extension on educational programs in this field.

Cooperation in Action

Extension and power suppliers personnel have to be up-to-date on the latest research and equipment developments relative to electric power use in agriculture. This is accomplished through short courses and conferences in which the timeliness and relative importance of power applications are recognized and educational activities planned accordingly.

They work on planning committees with other educational groups in the Virginia Farm and Home Electrification Council. The power supplier agricultural engineers then work with county agents in training leaders, putting on educational exhibits and demonstrations, giving talks at meettings, and assisting individuals with power use problems.

The 4-H electric program in Virginia is an excellent illustration of how power suppliers and extension specialists work together effectively. This program is planned by a committee of 4-H, agricultural engineering, and home economics specialists; county agents; and power supplier representatives.

The committee determines the record book and subject matter material requirements and the extension specialists either prepare or procure what is needed. In the counties, extension agents, 4-H Club leaders, and power supplier representatives determine together how the program will be conducted.

The procedure used in Bedford County has produced fine results. Here the county 4-H council has selected the electric project for emphasis for the last several years. Each year a planning conference involves extension agents, power supplier representatives and leaders.

Bedford County extension workers and power company representatives plan 4-H electric project.

The electric program was countywide in 1958 and power supplier representatives gave talks and demonstrations at all 59 January 4-H Club meetings before more than 1,600 club members and some 700 others. These meetings not only gave all club members some subject matter training but stimulated interest in project enrollment.

The county "Ampere Club," composed of 108 members, gets special advanced training by power supplier representatives. Most junior leaders for the electric program come from this club.

To give planned instruction to all 4-H Club members enrolled in the electric project, a 3-day group school is held each year. Instruction is given by power supplier representatives assisted by junior and adult leaders. Following this school, all 278 boys and girls enrolled in the project in 1958 followed through on their project work with the assistance of local leaders.

Over 11,000 4-H Club members, approximately 16 percent of the total in Virginia, enrolled in the 4-H electric program in 1957. Such widespread participation and progress in this challenging program would be impossible without effective power supplier participation. It represents extension-industry cooperation at its best.

Contracting Gets the Forestry Job Done

by W. K. WILLIAMS, *Federal Extension Service*

Removal of undesirable hardwoods and planting of pines near Carthage, N.C.

CUSTOM sawing of lumber has been a long standing practice in many rural areas. County agents and extension foresters have encouraged home use of farm timber and have assisted owners in making contact with mill operators.

Now contract work is being applied to forest management practices in many States. In New Hampshire farmers are having forest stands pruned and weeded by experienced crews. And in Texas, 80-90 percent of individual land owners' seedlings each year are planned on a contract basis.

Technical Guidance

There are no serious disadvantages in applying this type of operation on the farm if it is given some guidance. The cash outlay at the completion of the job may be considered a hurdle but this presents no difficulties if government practice payments are involved.

County Agent M. R. Glasscock, left, and Chilton County, Ala. farmer look over area where black jack oaks are being removed to give young pines more room.

When the job is done by a contractor who is not a forest technician, the advice of a forester is needed for the technical phases. In tree planting, for example, a qualified person should be consulted on site preparation, selection of species, and checking the planting operation.

Contract forestry is meeting a real need in areas of small forest tracts where individual owners cannot support full-time equipment and find it technically difficult to provide this service for themselves. In addition to planting, weeding, and pruning, other contract jobs include bulldozing scrub hardwood prior to planting, spraying for hardwood removal, chemical thinning, logging, and spraying Christmas trees for pest control.

In Virginia, Extension Forester Carl Holcomb reports four different types of operations: consulting foresters, industrial contract work by a paper company, pulpwood forester doing contract work in spare time, and a land owner who does contract work for other owners.

In some States sawmills are promoting woodland management and marketing services either directly or through tree farm families. This service may be on a fee basis or free of charge with the option of the first refusal when the owner is ready to sell his timber. In other instances, soil conservation districts, State forestry departments, private forestry agencies, and equipment dealers are doing contract work for woodland owners.

Agent's Role

The role of the county agent in contract forestry is an important one. As a go-between he informs owners of services, recommends practices, assists in bringing contractors and owners together, and at times assists with the scheduling of services. The technical guidance of the forestry specialist or local forester is also indispensable to the success of contract operations and will be needed more as this work increases.

The experiences of farmers and foresters in contract work reveal some advantages of this newer method of getting the forestry job done. In some cases, the cost of contract work in forestry has averaged 30 percent less than employing labor by the day to do the job.

Experienced woodsmen and college students are generally enthusiastic about contract jobs, as they can work long hours for a larger income and take time off as desired. Contract work, especially with power equipment, attracts outsiders and develops their interest and knowledge of forestry practices.

Awarding of contracts covering small units rather than large jobs has advantages, especially if there is a question about the contractor or his work.

Consulting foresters can assist with contract specifications, check to de-

termine compliance, and assist in training crews with practices. Crews can be trained to do satisfactory planting, timber stand improvement, and pruning work.

Cost Sharing

As an illustration of how contract forestry works under the forest practice provisions of ACP, County Forester Roger P. Sloan of New Hampshire explains the procedure used in his State.

A forestry contract job in New Hampshire involves the consulting forester as the contractor, woodland owner, manager of county ACP office, and the county extension forester.

The county forester contacts the woodland owner, discusses the work needed, and explains the ACP cost sharing plan. If the owner is interested, he is informed of consulting foresters who will contract to do the job. After the owner decides on a contractor, the county forester contacts him and discusses the work to be done.

Then the consulting forester visits the owner and quotes a price for doing the job. If the price is agreeable to the owner, a verbal contract is made for doing a specified acreage at a stated total cost.

Pruning costs vary from $20 to $32 per acre (100 trees pruned to 16 feet is considered an acre); and thinning and weeding costs vary from $15 to $24 per acre. ACP shares 50 percent of the cost of pruning and 75 percent of the cost of thinning.

When the owner's application for cost sharing is received by the county ACP office, funds are set aside, and the county forester notifies the ACP office that the area has been examined and is suitable for the work designated. The contractor then applies to the ACP office for a purchase order for the particular job. This is a contract to do work under the ACP program.

On completion of the job, the owner reports the amount of work done and the cost to ACP. The county forester checks the area and notifies the ACP office whether it is satisfactory. If so, ACP pays its share and the contractor bills the owner for his share. If not satisfactory, arrangements are made for the county forester and contractor to examine the area and discuss why it does not meet the requirements.

There are variations to this pattern. One is for the contractor to do the work and bill the owner for the whole job. In the meantime, the owner applies for cost-sharing. When the work is completed and after inspection, the owner receives the cost-sharing from ACP.

Even without cost-sharing the same approach can be used in bringing an owner and contractor together in order to get a job done. It is used in connection with boundary location, trespass cases, large timber sales, and other forest work requiring the services of consulting foresters.

SHOW HOW

(Continued from page 38)

harvested 45 bushels of wheat per acre from the 15-acre field and immediately planted it to corn. Three applications of water were made. He harvested 85 bushels of corn per acre. The following year he alternated his fields by planting wheat behind cotton. He harvested 40 bushels of wheat and 75 bushels of corn per acre from the 15-acre field that year. Without irrigation, double cropping would not have been possible.

Conditions in the rice area indicate that a land forming field day would benefit farmers in that area. Much is being wasted and stands materially reduced each year because of irregularities in fields. We plan to conduct a field day in that area this year.

More than 700 farmers witnessed the two demonstrations. As a result, land forming has been completed on nearly 6,000 acres. And we are anticipating a vast expansion of land forming throughout the entire county.

RIGHT TIME

(Continued from page 31)

and let them talk personally with growers who were getting better than 95 percent control. This was at a time when worm damage was so severe in Monterey County that growers simply could not ship.

This personal eye-opening tour was the ice breaker. At the start of the next season, eight fields were placed under treatment under the direction of the farm advisor.

Plume moth control in these fields was so outstanding that news spread from grower to grower like wildfire, and everyone wanted to try it. A county publication was prepared and a number of meetings held to discuss the program with growers.

This year some 90 percent of the growers are using the recommended program with good results. The success of this program has opened the door for demonstration work on improved marketing practices. This work will further improve the efficiency of artichoke production.

Yes, man learns best when he has an opportunity to see for himself. Sometimes he only sees what he wants to see when he wants to see it. It simply takes the right demonstration at the right time to open the door of opportunity.

Monthly Revisions in Publications Inventory

The following new titles should be added to the Annual Inventory List of USDA Popular Publications. Bulletins that have been replaced should be discarded. Bulk supplies of publications may be obtained under the procedure set up by your publication distribution officer.

F 849	Capons and Caponizing—*Reprint*
F 1861	Insect Pests of the Peach in the Eastern States—*Reprint*
F 2047	Maintaining Drainage System—*Reprint*
F 2122	Growing Seed Flax in the North Central States—*New*
F 2125	Making and Preserving Apple Cider—*Replaces F 1264*
L 172	Why Fruit Trees Fail to Bear—*Revised 1958*
L 233	Selecting Breeding Stock for Broiler Production—*Revised 1958*
L 324	Soil Treatment—An Aid in Termite Control—*Revised 1958*
L 378	A Rounded Corner Hutch for Rabbits—*Reprint*
L 437	Anaplasmosis in Cattle—*New*
L 442	How to Buy Eggs by USDA Grades and Weight Classes—*Replaces G 26*
G 32	Washing Machines—Selection and Use—*Slight Revision 1958*
G 58	Shopper's Guide to U. S. Grades for Food—*Replaces M 553*
G 60	The Beltsville Kitchen-Workroom—With Energy Saving Features—*New*

GOVERNMENT PRINTING OFFICE
DIVISION OF PUBLIC DOCUMENTS
WASHINGTON 25, D. C.

OFFICIAL BUSINESS

PENALTY FOR PRIVATE USE TO AVOID
PAYMENT OF POSTAGE, $300
(GPO)

Showing How on the Whole Farm

by D. L. BRANYON, *Extension Agronomist, Georgia*

If it works on five acres, it'll work on the whole farm. That was the reasoning of extension workers, commercial concerns, and Georgia farmers who had cooperated in carrying on 5-acre cotton demonstrations. This reasoning prompted the Bale and a Half Cotton Club, started in 1956.

Results from more than 10,000 five-acre demonstrations over a 9-year period proved it was possible for Georgia farmers to produce relatively high yields of cotton per acre.

Cost-Price Squeeze

During this same period, cotton acreage was being reduced. It dropped from 1,252,000 acres in 1946 to 570,000 in 1957. The narrow margin between the cost of production for the average farmer and what he received was one of the causes for this reduction.

In the 5-acre demonstrations, many growers were able to produce crops that returned a satisfactory profit to maintain production on the eligible land. So extension agronomists and commercial firms who had cooperated with county agents and farmers in carrying on these demonstrations decided to broaden the program to entire farms.

Any farmer who produces an average yield of 750 pounds or more of lint on his entire acreage is eligible for membership in the Bale and a Half Club. The farmer must furnish his county agent with gin receipts as proof of yield and a record of production costs.

County agents enroll farmers in the spring of each year. The farmers agree to demonstrate good cotton production practices such as: selection of land capable of producing high yields, use of fertilizer and lime recommended according to soil test, use of adapted productive and disease-resistant varieties, good seedbed preparation, proper cultural practices, recommended insect control program, and proper harvest and ginning practices.

Silver keys and certificates of merit are awarded to members at an annual banquet. Keys carry the club emblem and are inscribed with the member's name, yields, and year of the award. Gold keys are awarded to farmers who have averaged a bale and a half for 3 consecutive years.

In 1957, 72 Georgia farmers qualified for the Bale and a Half Cotton Club. The average production of qualifying members was 820 pounds of lint cotton per acre from 1,300 acres. The average production cost per pound for the club members was 5 cents less than the State average or 18 cents as compared to 23 cents.

Value Proven

Reports show that about $40 worth of fertilizer and insecticides was used per acre by club members, compared with $18 worth on the average cotton farm. The additional fertilizer and insecticides, with other good production practices, returned the club members $272 worth of cotton lint and seed per acre, compared with $110 for the average cotton grower in Georgia. Club members had a net return per acre of $121; the State average was $34.

This approach has brought the evidence to cotton producers that good yields with reasonable returns per acre are possible for those who apply timely, recommended practices.

Agent John R Gunnels and Gordon County farmer (left) in demonstration field.